AMENDMENT TO THE CLAIMS

1. (previously presented) A method of decoding an input semantic structure to generate an output semantic structure, the method comprising:

providing a set of transfer mappings that cover at least portions of the input semantic structure, each transfer mapping having an input semantic side that describes at least one node of the input semantic structure and having an output semantic side that describes at least one node of the output semantic structure;

using a processor to calculate a score for each of the set of transfer mappings which cover at least a select node of the input semantic structure using a statistical model, wherein calculating the score for each transfer mapping comprises combining scores of the highest scoring mappings for each child node of the select node not covered by the transfer mapping with the score of the transfer mapping;

using the processor to select the highest scoring transfer mapping of the set of transfer mappings which cover the at least one select node ; and

using the processor to construct the output semantic structure using the selected highest scoring transfer mapping.

2. (canceled)

3. (previously presented) The method of claim 1, wherein calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises calculating the score using a target language model that provides a probability of a set of nodes appearing in the output semantic structure.

4. (previously presented) The method of claim 1, wherein calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises calculating the score using a channel model that provides a probability of an input semantic side of a transfer mapping given the output semantic side of the transfer mapping.

5. (original) The method of claim 4, wherein calculating a score using the channel model comprises normalizing a channel model score based on a number of overlapping nodes between transfer mappings.

6. (previously presented) The method of claim 1, wherein calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises calculating the score using a fertility model that provides a probability of node deletion in a transfer mapping.

7. (previously presented) The method of claim 1, wherein calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises calculating a size score based on a number of nodes in the input semantic side of the transfer mapping.

8. (previously presented) The method of claim 1, wherein calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises calculating a rank score based on a number of matching binary features in the input semantic structure and the input semantic side of the transfer mapping.

9. (previously presented) The method of claim 1, wherein calculating a score for each transfer mapping in the set of transfer mappings that describe a select node of the input semantic structure comprises:

computing separate scores for a plurality of models; and

combining the separate scores to determine the score for each transfer mapping that describe a select node of the input semantic structure.

10. (original) The method of claim 9 wherein the plurality of models comprises a channel model that provides a probability of an input semantic side of a transfer mapping given the output semantic side of the transfer mapping.

11. (original) The method of claim 9 wherein the plurality of models comprises a fertility model that provides a probability of node deletion in a transfer mapping.

12. (original) The method of claim 9 wherein the plurality of models comprises a target language model that provides a probability of a set of nodes appearing in the output semantic structure.

13. (previously presented) The method of claim 9 and further comprising:

computing a size score for each transfer mapping that describes a select node of the input semantic structure, the size score based on a number of nodes in the input semantic side of each transfer mapping; and

combining the size score with the separate scores for the plurality of models to determine the score for each transfer mapping that describe a select node of the input semantic structure.

14. (previously presented) The method of claim 9 and further comprising:

computing a rank score for each transfer mapping that describe a select node of the input semantic structure, the rank score based on a number of matching binary features in the input semantic structure and the input semantic side of each transfer mapping; and

combining the rank score with the separate scores for the plurality of models to determine the score for each transfer mapping that describe a select node of the input semantic structure.

15. (previously presented) The method of claim 9 wherein combining the separate scores comprises:

multiplying each score by a weight to form weighted model scores; and

summing the weighted model scores to determine the score for each transfer mapping that describe a select node of the input semantic structure.

16. (previously presented) The method of claim 1, wherein providing a set of transfer mappings comprises providing a set of transfer mappings arranged as a tree structure and multiple levels of nested subtrees comprising a root transfer mapping and subtrees, each subtree comprising a root transfer mapping, wherein each transfer mapping in the set of transfer mappings appears as a root transfer mapping in at least one of the tree and subtrees.

17. (canceled)

18. (previously presented) The method of claim 16 wherein calculating a score for each of the set of transfer mappings comprises calculating a score for a tree of transfer mappings through steps comprises:

recursively calculating a score for each level of nested subtrees, wherein calculating a score for a subtree comprises recursively scoring the subtrees of the subtree, calculating a score for the root transfer mapping of the subtree, and combining the scores for the subtrees of the subtree with the score for the root transfer mapping of the subtree;

calculating a score for the root transfer mapping; and

combining the score for each subtree with the score for the root transfer mapping.

19. (original) The method of claim 18 wherein computing a score for a root transfer mapping comprises computing a size score for the root transfer mapping based on a number of nodes in the input semantic side of the root transfer mapping.

20. (original) The method of claim 18, wherein combining the score of subtrees with the score for a root transfer mapping comprises combining size scores for the subtrees with the size score for the root transfer mapping by averaging the size scores for the subtrees with the size score for the root transfer mapping.

21. (original) The method of claim 18 wherein computing a score for a root transfer mapping comprises computing a rank score for the root transfer mapping based on a number of matching binary features in the input semantic structure and the input semantic side of the root transfer mapping.

22. (original) The method of claim 21, wherein combining the score of subtrees with the score for a root transfer mapping comprises combining rank scores for the subtress with the rank score of the root transfer mapping by averaging the rank scores for the subtrees with the rank score of the root transfer mapping.

23. (currently amended) A machine translation system for translating an input in a first language into an output in a second language, the system comprising:

a processor;

a computer storage medium having stored thereon computer executable instructions for configur~~ed~~ing the processor to implement system components comprising:

a parser for parsing the input into an input semantic representation;

a search component configured to find a set of transfer mappings, wherein each transfer mapping includes an input semantic side that corresponds with portions of the input semantic representation;

a decoding component configured to score each of the set of transfer mappings that corresponds with a select portion of the input semantic representation and to select which of the transfer mappings that correspond with the select portion of the input semantic representation has a highest score, wherein scoring each of the set of transfer mappings includes combining scores of the highest scoring mappings for each child node of the select node not covered by the transfer mapping with the score of the transfer mapping; and

a generation component configured to generate the output based on the selected transfer mapping.

24. (original) The machine translation system of claim 23, wherein the decoding component scores each transfer mapping by using a plurality of statistical models.

25. (original) The machine translation system of claim 24, wherein the output comprises an output semantic representation and wherein the plurality of statistical models comprises a target model that provides a probability of a sequence of nodes appearing in the output semantic representation.

26. (original) The machine translation system of claim 24, wherein the plurality of statistical models comprises a channel model that provides a probability of a set of semantic nodes in an input side of a transfer mapping given a set of semantic nodes in an output side of the transfer.

27. (original) The machine translation system of claim 24, wherein the plurality of statistical models comprises a fertility model that provides a probability of a node deletion in the transfer mapping.

28. (original) The machine translation system of claim 24, wherein the decoding component scores each transfer mapping using a size score based on a number of nodes in an input side of the transfer mapping.

29. (original) The machine translation system of claim 24, wherein the decoding component scores each transfer mapping using a rank score based on a number of matching binary features between the input and an input side of the transfer mapping.

30. (previously presented) A method of determining a score for a word string, the method comprising:

using a processor to compute an input semantic structure having a plurality of nodes that relate to an input word string;

using the processor to obtain a set of transfer mappings, each of the set of transfer mappings including an input semantic side that describes at least one node of the input semantic structure; and

using the processor to score each of the set of transfer mappings which cover at least a select node of the input semantic structure with a target language model that provides a probability of sequences of nodes appearing in an output semantic structure having a plurality of nodes that relate to an output word string, wherein scoring each transfer mapping comprises combining the highest scoring mappings for each child node of the select node not covered by the transfer mapping with the score of the transfer mapping; and

using the processor to select the highest scoring transfer mappings of the set of transfer mappings which cover at least the select node.

31. (previously presented) The method of claim 30, wherein providing an input semantic structure having a plurality of nodes comprises providing an input semantic structure having a plurality of word nodes and at least one relationship node that describes a semantic relationship between words.

32. (previously presented) The method of claim 30, wherein providing word nodes comprises providing word nodes for lemmas.

33. (previously presented) The method of claim 30, wherein scoring the input word string with a target language model comprises scoring the input word string with the target language model in machine translation.

34. (previously presented) The method of claim 30, wherein scoring the input word string with a target language model comprises scoring the input word string with the target language model in speech recognition.

35. (previously presented) The method of claim 30, wherein scoring the input word string with a target language model comprises scoring the input word string with the target language model in optical character recognition.

36. (previously presented) The method of claim 30, wherein scoring the input word string with a target language model comprises scoring the input word string with the target language model in grammar checking.

37. (previously presented) The method of claim 30, wherein scoring the input word string with a target language model comprises scoring the input word string with the target language model in handwriting recognition.

38. (previously presented) The method of claim 30, wherein scoring the input word string with a target language model comprises scoring the input word string with the target language model in information extraction.

39. (previously presented) The method of claim 1, wherein providing the set of transfer mappings comprises providing root transfer mappings that describe the select node and root transfer mappings that describe any child nodes of the select node.

40. (previously presented) The method of claim 39, wherein combining scores of the highest scoring mappings for each child node of the select node not covered by the transfer mapping with the score of the transfer mapping comprises:

determining whether each transfer mapping that describes the select node also describes any child nodes;

calculating a score for each of the root transfer mappings that describe one of the child nodes of the select node with the statistical model;

selecting which of the root transfer mappings that describe one of the child nodes of the select node has the highest score;

combining scores of the highest scoring root transfer mappings that describe each of the child nodes with a score of the transfer mapping of the select node to find the score for each of the set of transfer mappings that describes the select node.